

ABSTRACT OF THE DISCLOSURE

A novel junction design was developed for use with in-line combiner networks to minimize electrical length between the resonators being combined and to optimize coupling. It consists of a combiner comprising a plurality of cavity resonators coupled to a combining mechanism. The combining mechanism is placed outside of each resonator a prescribed distance above the ground plane. Combiner pairs are created by connecting two cavities to each other using quarter-wave lines. The central combiner pair is directly connected to the output connector through a common port. The quarter-wave junctions not directly connected to the output connector are then connected to the output port through half-wavelength lines. Iris or aperture coupling is controlled by a sliding cover that is adjusted using a free-rotating screw and is secured with locking screws to ensure good electrical and RF grounding.